

UNIV. OF MICHIGAN

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**SIGMA XI QUARTERLY**

VOLUME I

MARCH, 1913

NUMBER 1



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**EDITORIAL COMMITTEE:**

James McKeen Cattell  
Dayton Clarence Miller

Henry Baldwin Ward  
Samuel Wendell Williston

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From Address of President Henry S. Williams, October, 1896.

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## SALUTATORY

The founders of the Society of the Sigma Xi builded well, doubtless far better than they anticipated. The most optimistic among them would hardly have volunteered the prophecy that within a quarter of a century the Cornell germ of a dozen members at the close of 1886 would grow into an organization extending from the Atlantic to the Pacific and numbering its members by the thousand. The founding of the Society was opportune, at the time when the older ideals of cultural scholarship were giving place to the modern ones of productive scholarship in the university. And the recognition of this change so boldly and convincingly expounded by its first president, has been the basis of the marvelous growth and extensive usefulness of the Society. Since its beginning Sigma Xi has stood for the encouragement of investigation, of research, rather than for the mere acquisition of knowledge, and a yet closer adherence in the future to the ideals of the past will surely bring results that even the most sanguine among us can not estimate. There are those of us who believe that ere the usefulness of Sigma Xi will have ceased, it will become world-wide in its influence, one of the most potent of all influences in the development of science.

But the Society of the Sigma Xi is approaching a crisis in its history. During the first ten years of its existence, with but a few score of members, mutual contact and mutual counsel served to guide its affairs aright. But with its active membership increased to two thousand, or more, and extending from ocean to ocean, it is evident enough that the older methods will no longer suffice for the dissemination of the principles for which Sigma Xi stands. Moreover, it is inevitable that the immediate objects of the organization cannot always remain the same, though its ultimate ideals may. It must progress as a whole or suffer decay.

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Since the inception of the Society its policy of extension has always been a serious one, one that has had the thoughtful consideration of all those who have been interested in its future welfare. With increased diversity of opinion as to its objects and ideals, it must inevitably find its ultimate level with that of the lowest. It is the earnest wish of all those who have faith in the Society that its circle of usefulness shall widen out till it shall include every man and every woman who is earnestly engaged in productive work in science, until a chapter has been installed in every institution of higher learning in America at least. But such an extension will be imprudent to say the least under the present somewhat loose bands that unite the different chapters.

The Sigma Xi Quarterly greets you in this, its first appearance, trusting and believing that it will serve a useful purpose in bringing about a closer union among the chapters and among their many members, both active and alumni. Its pages will bring to you four times each year all of interest that it can gather concerning not only this Sigma Xi Society as a whole, but of all the chapters, their activities and their work. It will record the names of all those who are honored by election to membership and something also of the work of each; perhaps, also, it will serve, as the years go by, as a repository for the final records of its members.

For the accomplishment of these objects it earnestly appeals for encouragement and assistance to every chapter, to every member that sympathizes with the ideals of Sigma Xi. S. W. W.

In many of the earlier conventions the presidents in commenting upon the growth of Sigma Xi called attention to the importance of guarding against the lack of coordinated activity which would result from this expansion. President S. W. Williston was particularly insistent in his recommendations for the development of some medium of communication between the chapters. He has emphasized again and again the dangers of cleavage between chapters so widely separated geographically and so distinct in membership through their connection with institutions of clearly differentiated types. He pointed out that the Society has served a most useful purpose in bringing into closer relationships not only those interested in the discovery of new truths but also those who seek new applications of old truths, and urged as a means of insuring the full and sympathetic association of workers in all branches of scientific activity that the Society should have some sort of a periodical publi-

cation. In June, 1903, Professor E. L. Nichols, then Chairman of the Council, sent a circular notice to the members of that body calling attention to the importance of an annual publication and asking councilors to secure an estimate of the attitude of individual chapters towards such a project. The manuscript record of the New York convention, June 26, 1906, states that there was much discussion on the need of an official organ for the Society which should give general and statistical information to individual chapters and members, and that the general secretary was requested to enter into communication with all chapters regarding the issuing of such a publication. It proved impossible in connection with other duties to carry out the extensive correspondence implied in this request. The matter has been brought up also at later conventions. It was finally carried to definite discussion and action at the Cleveland convention and the Sigma Xi Quarterly, of which this is the first number, is the result of this agitation. H. B. W.

#### THE PLAN AND PURPOSE OF THE QUARTERLY

Since the Cleveland convention the members of the Editorial Committee have been in active correspondence and also have held one meeting in Chicago. They have worked hard to crystallize into definite form the suggestions and general plan which have been offered for the new publication, and submit this number as the results of their efforts. There can be little doubt as to the general purpose which has been in the minds of so many different men in urging the publication of such a journal. The officers of the Society who have been in receipt of numerous inquiries from various chapters, appreciate perhaps more fully than the general membership that there is ignorance in one section concerning practices followed and results achieved in chapters at a distance. Individual chapters have worked out effective means of realizing the ideals of the organization, and their plans have failed of wider application only because they have not come to the attention of other chapters.

Of the many possible directions in which such a publication might be effective it has been deemed wise to select a few and to try those out in the first numbers. For this year the material will be presented under the following heads: Editorials, leading articles, chapter reports, including elections, necrology, discussions, and news items. In future issues the editorial discussions will be more definitely concerned with the policy and welfare of the organization, and

it is hoped that members of the Society will contribute appropriate editorials to be published either with or without signature. The Proceedings of the Cleveland convention becomes the leading article in this number; in future numbers historical sketches, addresses, and other more extended articles having a direct relation to the Society and its aims, will occupy this place.

In the presentation of chapter reports it has been felt that the material should be prepared by the chapter secretary and submitted in form for the printer so that the editorial work of those who have the Quarterly in charge may be reduced to the minimum. It is our intention to print these reports, generally speaking, in the order which they are received, and by printing each over the signature of the chapter secretary to indicate that the editorial committee assumes no responsibility for the accuracy or completeness of the report submitted. It is evident, however, that they should be reasonably uniform and present the material offered in a form adapted to the general plan. This problem has received careful attention, especially since the chapter reports are intended to include a list of elections, and the justification of the elections in different chapters has been questioned somewhat sharply by members and outsiders. We believe that these criticisms are due to a lack of information concerning the facts in the case, and it is with a view to answering such criticisms and to forestalling them that the committee has suggested a definite form for presenting the facts concerning new members. With some 700 elections yearly, the number of entries will be large and it is necessary to condense the data to the minimum possible space. At the same time it seems important to indicate both the type of membership and the basis for election, in order that these facts may be presented so clearly as to prevent misunderstanding. These lists of elections will supplement the membership record as given in the Quarter Century History just coming from the press, but the form of presentation will necessarily be a little different. Each record will be given two lines, the first devoted to the name and a statement of the grade of membership, the second to the title and source of the particular contribution to knowledge which is the basis of the election. In case this contribution is published a reference to place of publication will constitute a valuable part of the record; in case the work is in the form of a graduate or senior thesis a statement of this fact will at once furnish evidence to the questioner of the definiteness of the basis for election. The criticism which has been made that the Society was not upholding its standards and was distributing its honors too broadly

must suggest itself to any one who reads the long lists of elections in our large chapters. Even those of us most constantly in contact with the institutions fail to appreciate how fast they are growing and how much good work they are doing. The mere list of names suggests only the size of the institution, or possibly also the generosity of the electors. When, however, this list is printed with a definite record of the work done by each candidate it will serve to show the breadth of the work carried on at the institution as well as to demonstrate a reason for the individual election.

The discussions which we hope to include under the heading of the Open Forum will naturally be somewhat more informal and perhaps also deal with more trivial items than could be treated in any editorial. They will afford a chance to ventilate grievances, correct errors, and pass judgment on practices of the Society without fear or favor. While the Editorial Committee will not hesitate to print "Knocks and boosts," it will sacredly guard the identity of all, especially of those who may venture to commend its labors or palliate its offences!

Finally, it is both appropriate and important to extend hereby to every loyal member of Sigma Xi a most cordial invitation to participate in the production of a worthy journal. If the work is left to the Editorial Committee and to the chapter secretaries the results cannot be as valuable for the Society as we all hope they may be. The time is approaching when the happenings of the early days will have gone beyond recall; it is worth while to have them recorded for the Society. Several sketches by founders and their associates in the work of establishing the Society have been promised for the Quarterly. On the other hand the fullest possible discussion of present day tendencies will aid in directing the development of Sigma Xi so that it may serve most effectively the cause of scientific education and research in our colleges and universities. The record of the past is one of which every member of Sigma Xi may justly be proud; it shows equally well the greater possibilities of the future. With your active cooperation the Quarterly will be an influential factor in achieving those possibilities.



# PROCEEDINGS OF THE FOURTEENTH CONVENTION OF THE SOCIETY OF THE SIGMA XI

CLEVELAND, JANUARY 2, 1913

The fourteenth convention of the Society of the Sigma Xi was called to order in the Reading Room, Main Building, Case School of Applied Science, by Professor H. T. Eddy of the University of Minnesota, at 3:30 P. M., January 2, 1913. The President appointed B. Shimek, T. M. Focke, R. R. Tatnall, as the Committee on Credentials, who reported twenty-two chapters represented by proper delegates presenting official credentials, as follows:

Case	F. M. Comstock, D. C. Miller, T. M. Focke
Chicago	S. W. Williston
Colorado	Henry B. Dates
Columbia	J. McK. Cattell, George B. Pegram
Illinois	G. A. Miller, H. B. Ward, S. A. Forbes
Indiana	F. N. Andrews, Cora B. Hennel
Iowa State	F. C. Brown, B. Shimek
Kansas	W. J. Baumgartner, J. N. Van der Vries, S. J. Hunter
Michigan	A. G. Ruthven
Minnesota	H. T. Eddy
Missouri	W. C. Curtis
Nebraska	L. B. Tuckerman, Jr., F. D. Barker
Northwestern	W. A. Locy, R. R. Tatnall
Ohio State	H. Osborn
Pennsylvania	H. H. Donaldson, C. E. McClung
Rensselaer	F. C. Osborn
Syracuse	W. H. Metzler
Union	W. A. Garrison
Washington Univ.	J. F. Abbott
Wisconsin	C. E. Allen
Worcester	A. W. Ewell
Yale	J. P. Schaeffer, Davenport Hooker, L. B. Mendell

Others present, but without credentials as delegates, were as follows:

Chicago	M. A. Brannon
Ohio State	Wm. R. Lazenby
Indiana	S. E. Meek
Case	F. H. Neff



The President announced that the Constitution required that three-quarters of the chapters shall constitute a quorum, 21 at the present time, and that, as there were 22 chapters represented, the meeting was legally constituted.

The President announced that unless corrections were offered, the proceedings of the last convention, were approved as printed.

President Eddy's annual report on the business of the Society, omitting some details, which, while important to guide the action of the members of the Convention present, he has not desired to print, was substantially as follows:

The large mass of Society correspondence which has occupied me during the year has mostly pertained to questions of extension and the granting or refusal of new charters at six institutions which have either petitioned for charters or desire to do so, together with one or two others which have been considering this step, which were received last year. Two of these petitions have been refused during the year, and I have been obliged to inform most of the others that, under present constitutional requirements and with the existing attitude of the Society as shown by recent refusals of charters, their petitions would not find favorable consideration. All but one of the tentative applications have apparently been withheld for the present. But a petition from one of these institutions with an exceedingly strong medical department which is doing important research work, has been presented to the Society and is pending before the Council.

I am informed that proposals will be made at this Convention looking to the modification of our constitutional requirements in such a way as to safeguard our standards and yet enable us to grant charters to groups of productive researchers. I trust that some way may be found to accomplish this end.

Besides this, there are before us for action certain proposed amendments to the Constitution recommended by the Minnesota Chapter, embodying the suggestions contained in my last annual report, intended to facilitate the business of the Society, which I hope may lead to desirable changes of procedure.

The management of the Panama-Pacific Exposition has extended an official invitation to this Society as well as to many other organizations, to hold a summer meeting in 1915 at San Francisco. This invitation is hereby presented to the Society for such action as it may wish to take.

The Council has inadvertently omitted to nominate officers for the coming year as directed by a new provision of the Consti-

tution and it asks the Society to proceed to elect new officers in any manner it may see fit.

In this connection your presiding officer begs to advise the Society that his relationship to university work has been so changed by his recent retirement from active service that in his opinion it would be better for the Society to fill the office of president of the Society by some one still in active service.

The Secretary read the report of the Treasurer. It was voted that the report be accepted and with the bank book and vouchers, be referred to the Auditing Committee. Upon motion by Henry B. Ward, it was voted that J. McKeen Cattell be appointed Auditor and that the report of the Auditor be printed in the proceedings. (This report is given in full on page 15.)

Upon motion by B. Shimek, it was voted that the reports from the various chapters given at the banquet on the preceding evening, be considered as fulfilling the next order of business, viz., Reading by delegates of the chapter reports. The report of the proceedings at the banquet is as follows:

After the dinner, President Eddy, acting as toastmaster, called upon S. W. Williston, one of the founders of the Society. He gave a short history of the Society. It was founded simply as an honorary society. There are now 28 chapters and its purpose has developed until its main object now seems to be the encouragement of research. The looseness of conditions of membership was criticised. Some institutions hesitate to ask for charters because of the indefiniteness of the organization. Actual productive work in science was advocated as a requirement for membership. It seems desirable that the Society should publish a bulletin giving news of the various chapters, especially with regard to the research work done by the several chapters.

Cornell: H. E. Summers. The speaker, now of Iowa State College, was one of the first candidates not an engineer, to be admitted to the Cornell Chapter.

Union: W. A. Garrison.

Kansas: S. J. Hunter. During the past year the Kansas Chapter made efforts to secure from the administration better facilities for carrying on research work. Undergraduates are elected to membership only from the engineering departments.

Minnesota: Henry F. Nachtrieb.

Nebraska: L. B. Tuckerman, Jr.

Ohio State: A. P. Weiss. Remarks were made favoring an investigation to ascertain what per cent. of the members of Sigma Xi actually do research work after election.

Pennsylvania: M. G. Lloyd.

Brown: H. T. Stetson.

Iowa State: G. W. Stewart.

California: Frank W. Bancroft. The opinion was expressed that undergraduates receive no benefits from the Society of Sigma Xi.

Columbia: J. McKeen Cattell.

Chicago: S. W. Williston. Only one undergraduate has been admitted to membership in the Chicago Chapter, and this one only after he had published an important piece of research. Associate membership was advocated for undergraduates.

Michigan: H. W. Randall.

Illinois: G. A. Miller.

Case: Frank M. Comstock.

Indiana: Miss Mary T. Harman.

Missouri: Max Meyer.

Northwestern: Wm. A. Locy.

Syracuse: F. A. Saunders.

Wisconsin: B. M. Allen.

Purdue: R. M. Kenyon.

Washington University: G. F. Abbott.

Upon motion by G. A. Miller, it was voted that a nominating committee be appointed consisting of the chapter representatives on the Council, exclusive of the officers of the Society. This committee consisted of W. A. Locy, W. H. Metzler, and T. M. Focke.

Corresponding Secretary Henry B. Ward gave the annual report. It was stated that the proof for the Record and History of the Society of Sigma Xi had been corrected, that the page proof was ready, and that the volume would soon be issued. He referred to the difficulty of obtaining correct reports from the different chapters and asked that he be not held responsible for errors. He mentioned one instance in which he found forty names missing from the list furnished by the chapter. The edition is to be 2,000 copies. About half of these have been paid for in advance. A full report of the financial account in connection with the issuing of the volume will be made after the printing. The number of subscriptions actually received is somewhat more than 1,700. The actual membership of the Society to the close of the year 1911, is 7,498. There were elected in 1912 about 700 members who,

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It was suggested by J. McKeen Cattell that the linotype for the Record and History be held in storage for a year to allow a second impression if the demand is sufficient.

Upon motion by J. McKeen Cattell it was voted that the secretary be authorized to offer members who had not subscribed, another opportunity to purchase the volume and that he provide so far as possible to meet this demand.

Upon motion by S. W. Williston it was voted:

That the President be instructed to appoint a committee of three, one of whom shall be an engineer, whose duty it shall be to formulate an amendment to the Constitution defining the qualifications for membership and associate membership in the Society of the Sigma Xi;

That said committee shall submit its report, or reports, to the Council in such a way as it may prefer;

That the report, as modified or amended by the Council, shall be submitted to each chapter for approval before submission to the next convention of the Society for final action.

The President appointed S. W. Williston, Chicago, chairman; E. L. Nichols, Cornell; W. F. M. Goss, Illinois; as the committee to consider the qualifications for membership.

Remarks were made by S. W. Williston explaining the desirability of issuing a Quarterly Bulletin of perhaps 32 pages, the printing of which for the year might cost \$300 and other expenses incidental to its distribution might be \$100. He thought such a bulletin might create further interest in the Society and increase its usefulness. The subscriptions might possibly include 1,500 active members and 500 alumni members.

Upon motion by Henry B. Dates it was voted:

That the Society accept Dr. Williston's offer to act as Managing Editor of a Sigma Xi bulletin to be published quarterly:

That the Society guarantee the expenses of the publication for one year;

That the bulletin be sent active members only, and that a nominal subscription price of 50c be made for all others;

That the two secretaries, with the Managing Editor, constitute a publication committee.

Upon motion by T. M. Focke it was voted that the President of the Society be added to the committee on the publication of the bulletin.



## PROCEEDINGS FOURTEENTH CONVENTION 11

The Nominating Committee reported the following nominees for the several offices:

President, J. McKeen Cattell, Columbia.

Vice-President, John H. Long, Northwestern.

Recording Secretary, Dayton C. Miller, Case.

Treasurer, J. F. Kemp, Columbia.

Corresponding Secretary, Henry B. Ward, having been elected for a four-year term, continues in office.

Upon motion by G. A. Miller it was voted that the secretary cast the ballot of the Society for the nominees. Secretary Ward cast the ballot and the President announced the nominees as the duly elected officers of the Society for two years.

The President brought to the attention of the Society the amendments to the Constitution proposed by the Minnesota Chapter. These amendments are as follows:

### AMENDMENTS TO THE CONSTITUTION OF SIGMA XI PROPOSED BY THE MINNESOTA CHAPTER

#### ARTICLE II.

SECTION 3. The chairman shall submit copies of the petition and all available information to the members of the council for consideration and consultation with the members of their chapters. It shall be the duty of each councilor to advise the chairman by letter as soon as practicable as to his attitude and that of his chapter regarding the petition. The chairman shall submit the results of this consultation to each councilor in detail for his information and further consideration. After full opportunity for further inquiry, the chairman shall submit the question of granting the petition to letter ballot of the councilors whose vote shall be final. Each chapter may make rules such as it may determine upon regarding its instructions to its councilor in the matter of his voting upon petitions for charters.

When the chairman has received the written consent of three-fourths of the members of council to the granting of the petition, he shall notify the president that the petition has been granted.

SECTION 4. Councilors not reporting their votes within a period of six (6) months from the time of any question is submitted to them, shall be again requested to vote, and on failure to do so within ten days, shall be regarded as having voted in the affirmative.

SECTION 5. A charter for the establishment of a new chapter shall be issued as soon as the president has received notification of the consent of the requisite number of councilors.

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PROPOSED BY THE MINNESOTA CHAPTER

ARTICLE II.

SECTION 3. The chairman shall submit copies of the petition and all available information to the members of the council for consideration and consultation with the members of their chapters. It shall be the duty of each councilor to advise the chairman by letter as soon as practicable as to his attitude and that of his chapter regarding the petition. The chairman shall submit the results of this consultation to each councilor in detail for his information and further consideration. After full opportunity for further inquiry, the chairman shall submit the question of granting the petition to letter ballot of the councilors whose vote shall be final. Each chapter may make rules such as it may determine upon regarding its instructions to its councilor in the matter of his voting upon petitions for charters.

When the chairman has received the written consent of three-fourths of the members of council to the granting of the petition, he shall notify the president that the petition has been granted.

SECTION 4. Councilors not reporting their votes within a period of six (6) months from the time of any question is submitted to them, shall be again requested to vote, and on failure to do so within ten days, shall be regarded as having voted in the affirmative.

SECTION 5. A charter for the establishment of a new chapter shall be issued as soon as the president has received notification of the consent of the requisite number of councilors.

## ARTICLE VIII.

SECTION 1. A regular convention of the Society consisting of one delegate from each chapter shall be held once each two years during the summer vacation at a time and place fixed upon by the council.

Appendix V is hereby repealed.

SECTION 2 (a). Each chapter in good standing shall be entitled to be represented at the convention by a single delegate.

(b) The councilor of any chapter shall ex-officio represent the Chapter at convention as delegate, unless the chapter shall otherwise designate.

(c) (Unchanged).

(d) The necessary traveling expenses in attending the convention of one delegate for each chapter shall be paid out of the funds of the Society by the general treasurer.

(e) (Unchanged).

SECTION 3. (a) The appointment of any delegate in lieu of a councilor shall be certified to by the secretary of the chapter appointing him, in a letter to the committee on credentials of the convention.

SECTION 4. (k) (To be omitted).

After extended discussion of these amendments it seemed undesirable to change the time of meeting, which was established by the action of the Convention of 1899. Upon motion by J. McKeen Cattell it was voted that the proposed amendments and suggestions of the President be referred to a committee of five who should formulate changes in the Constitution and report at the next convention.

The President appointed as members of the Committee on Amendments to the Constitution:

H. S. Williams, Cornell, chairman  
F. R. Watson, Illinois, secretary  
J. McK. Cattell, Columbia  
Julius Stieglitz, Chicago  
H. T. Eddy, Minnesota.\*

(Signed)

DAYTON C. MILLER

Recording Secretary

\*Since the amendments presented by the Minnesota Chapter were the primary reason for the appointment of this committee and since many members of the convention felt the importance of utilizing the experience of President Eddy in the work of revising the Constitution, he reluctantly consented to become a member of the committee.

# REGISTRATION AT SIGMA XI DINNER

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## REGISTRATION OF GUESTS AT THE SIGMA XI DINNER

HOTEL EUCLID, JANUARY 1, 1913

NAMES	INSTITUTION	LOCATION
J. F. Abbott	Washington University	St. Louis, Mo.
J. E. Ackert	Illinois	Urbana, Ill.
Bennet M. Allen	Wisconsin	Madison, Wis.
Frank W. Bancroft	California	New York City
F. D. Barker	Nebraska	Lincoln, Neb.
E. A. Baumgartner	Kansas	Minneapolis
G. W. Bissell	Cornell	Lansing, Mich.
F. C. Brown	Iowa	Iowa City, Ia.
J. McK. Cattell	Columbia	New York City
R. B. Chillias, Jr.	Pennsylvania	Cleveland, Ohio
F. M. Comstock	Case	Cleveland, Ohio
W. C. Curtis	Missouri	Columbia, Mo.
M. S. Dooley	Syracuse	Syracuse, N. Y.
H. T. Eddy	Minnesota	Minneapolis
C. F. W. Felt		Topeka, Kan.
E. P. Felt		Albany, N. Y.
T. M. Focke	Case	Cleveland, Ohio
W. E. Garrey	Washington University	St. Louis, Mo.
W. A. Garrison	Union	Schenectady, N. Y.
Charles W. Greene	Missouri	Columbia, Mo.
Charles W. Hargitt	Syracuse	Syracuse, N. Y.
J. Ernest Harmon	Chicago	Cincinnati, O.
Mary T. Harmon	Indiana	Manhattan, Kan.
E. H. Harper	Northwestern	Evanston, Ill.
Cora B. Hennel	Indiana	Bloomington, Ind.
C. H. Heuser	Kansas	Boston, Mass.
A. M. Holcomb	Case	Cleveland, Ohio
J. A. Holmes	Cornell	Washington
Harry S. Howes	Carnegie Institute	Pittsburgh, Pa.
H. B. Hungerford	Kansas	Lawrence, Kan.
S. J. Hunter	Kansas	Lawrence, Kan.
George F. Kry	Iowa	Iowa City, Iowa
A. M. Kenyon	Purdue	Lafayette, Ind.
Frank P. Knowlton	Syracuse	Syracuse, N. Y.
M. G. Lloyd	Pennsylvania	Chicago, Ill.
Wm. A. Locy	Northwestern	Evanston, Ill.
C. F. Lorenz	Iowa	Cleveland, Ohio.
Ruth Marshall	Nebraska	Rockford, Ill.
C. E. McClung	Pennsylvania	Philadelphia, Pa.
Max Meyer	Missouri	Columbia, Mo.
G. A. Miller	Illinois	Urbana, Ill.
Robert K. Nabours	Kansas	Manhattan, Kan.
Henry F. Nachtrieb	Minnesota	Minneapolis
Herbert Osborn	Ohio State	Columbus, Ohio
George B. Pegram	Columbia	New York City
J. L. Pricer	Illinois	Normal, Ill.
H. J. Quayle	California	Berkeley, Cal.

H. F. Randall	Michigan	Ann Arbor, Mich.
Albert M. Reese	Syracuse	Syracuse, N. Y.
F. A. Saunders	Syracuse	Syracuse, N. Y.
R. E. Scammon	Kansas	Minneapolis
W. L. Severinghaus	Columbia	New York City
James B. Shaw	Illinois	Urbana, Ill.
Marian Lydia Shorey	Brown	Milwaukee, Wis.
S. E. Slocum	Union	Schenectady, N. Y.
C. R. Stauffer	Chicago	Cleveland, Ohio
H. T. Stetson	Brown	Providence, R. I.
G. W. Stewart	Iowa	Iowa City, Ia.
R. M. Strong	Chicago	Chicago, Ill.
H. E. Summers	Cornell	Ames, Ia.
G. D. Swezey	Nebraska	Lincoln, Neb.
Robert R. Tatnall	Northwestern	Evanston, Ill.
A. H. Taylor	Wisconsin	
A. O. Thomas	Iowa	Iowa City, Ia.
Charles P. Sigerfpos	Minnesota	Minneapolis
J. E. Todd	Kansas	Lawrence, Kan.
E. J. Townsend	Illinois	Champaign, Ill.
A. C. Trowbridge	Chicago and Iowa	Iowa City, Ia.
L. B. Tuckerman, Jr.	Nebraska	Lincoln, Neb.
Henry B. Ward	Illinois	Urbana, Ill.
A. P. Weiss	Ohio State	Columbus, Ohio
C. N. Wenrich	Pennsylvania	Pittsburgh, Pa.
F. X. Williams	Kansas	Lawrence, Kan.
S. W. Williston	Chicago	Chicago, Ill.
D. T. Wilson	Case	Cleveland, Ohio
A. N. Winchell	Wisconsin	Madison, Wis.
George Winchester	Washington and Jefferson College	
Robert H. Wolcott	Nebraska	Washington, Pa.
Anthony Zeleny	Minnesota	Lincoln, Neb.
		Minneapolis



## REPORT OF TREASURER

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## REPORT OF THE TREASURER OF SIGMA XI FOR 1912

## Receipts in 1912

Jan. 1	Balance .....	\$ 295.67
Jan. 5	Nebraska Chapter Assessment .....	15.00
Feb. 27	Ohio State Chapter Assessment .....	41.00
Feb. 27	Pennsylvania Chapter Assessment .....	49.00
Mar. 1	Brown Chapter Assessment .....	15.00
Mar. 4	Stanford Chapter Assessment .....	39.75
Mar. 11	Purdue Chapter Assessment .....	22.00
Mar. 18	Minnesota Chapter Assessment .....	48.00
Mar. 25	Colorado Chapter Assessment .....	19.50
Apr. 22	Missouri Chapter Assessment .....	28.50
Apr. 22	Iowa Chapter Assessment (1909) .....	8.00
Apr. 22	Iowa Chapter Assessment (1911) .....	31.56
May 13	Case Chapter Assessment .....	9.00
May 31	Kansas Chapter Assessment .....	24.50

\$ 646.42

## Expenses in 1912

Jan. 9	Flanigan-Pearson Co. ....	\$ 23.00
Jan. 9	H. B. Ward, Rent of Banquet Hall .....	3.00
May 9	Judson Printing Co., Printing Proceedings .....	116.42
May 9	D. C. Miller, Recording Secretary Expenses .....	5.60
Dec. 9	J. Stieglitz, Chairman Council .....	12.20

\$ 160.22

Receipts ..... \$ 646.42

Expenditures ..... 160.22

Balance ..... \$ 486.20

All assessments have been paid to date, except that of June 2, 1911, which is still owing by the chapters at the Universities of Chicago and Indiana.

Respectfully submitted,

JAMES F. KEMP, *Treasurer*

I hereby certify that the foregoing account is correctly cast and properly vouchered.

J. McK. CATTELL, *Auditor*

New York City, January 21, 1913

## CHAPTER REPORTS

### THE STANFORD CHAPTER

At the regular annual meeting of the Stanford Chapter, held in the Faculty Club House, May 2, 1912, a general reception and banquet was given to the newly elected members of the Society. Professor G. H. Marx, president of the Chapter, welcomed the new members on behalf of the Society, and President David Starr Jordan addressed the meeting on the Ideals of Sigma Xi.

The list of the officers elected for the ensuing year is given in the synopsis of chapter officers. In addition, the Chapter selected as electors: Austin Flint Rogers, Associate Professor of Mineralogy; John Fredrick Rogers, Associate Professor of Physics; Rennie Wilbur Doane, Assistant Professor of Entomology; Guido Hugo Marx, Professor of Mechanical Engineering, and Professor R. E. Swain.

#### NEW MEMBERS ELECTED.

Maxwell Adams, alumnus.

Professor of Chemistry, University of Nevada.

The reduction of copped sulphate with hydroxylamine: Jour. Amer. Chem. Soc., vol. 31.

David Livingston Crawford, graduate student.

A contribution toward a monograph of the Delphacidae of America.

Ernest Charles Dickson, faculty member.

A further report on the production of experimental chronic nephritis in animals by the administration of uranium nitrate: Archives Int. Med., vol. 9, May, 1912. Also other publications.

Thomas B. Freas, alumnus.

Assistant Professor of Chemistry, Columbia University.

Work in developing thermostats for chemical operations.

Charles Merrill Fulkerson, graduate student.

The influence of ether anesthesia upon the production of glycosuria. Thesis for A.M.

Eloise Jameson, graduate student.

A study of the cataphoresis and agglutination of bacteria and serum proteins. Thesis for A.M.

Carl Edward Johnston, undergraduate.

Internal anatomy of *Icerya purchasi*, Annals Entom. Soc. Amer., vol. 5, December, 1912.

John Andrew Koontz, Jr., graduate student.

Corona studies. Thesis for E.E.

William Noble Lacy, graduate student.

Electrolytic refining of silver-bismuth alloys. Thesis for A.M.

Robert Strong Lewis, graduate student.

A problem in ore dressing. Thesis for E.M.

Eugene G. McCann, graduate student.

Corona studies. Thesis for E.E.

Charles William Metz, graduate student.

Studies on Japanese and Corean fishes.

Dr. William Ophüls, faculty.

Experimental nephritis in guinea pigs by subcutaneous injections of chromatis: Proc. of the Soc. Exper. Med., vol. 9, 1911. Also other publications.

John Howard Paine, undergraduate.

Several papers on Mallophaga and Anoplura.

Ralph Carlton Pollock, graduate student.

The influence of electrolytes on the cataphoresis of colloidal arsenious sulphide. Thesis for A.M.

George Ezinha Postma, undergraduate.

Daphllite (Todolite) from Tonopah, Nevada. Voelckerite, a new basic calcium phosphate. Remarks on chemical composition of apatite and phosphate rocks. A.F. Rogers, with analyses by G. E. Postma.

Charles H. Richardson, Jr., undergraduate.

Reptiles of the Lahonton Basin of Nevada.

Henry Johnson Sears, graduate student.

A study of the cataphoresis and agglutination of bacteria and serum proteins. Thesis for A.M.

Stephen Taber, alumnus.

Professor of Geology, University of South Carolina.

Contributor to the California earthquake commission. Also other publications.

Eugene C. Templeton, graduate student and instructor in Field Geology.

Geology of the San Jose quadrangle for the U. S. Geological Survey. Also other publications.

William Lester Walker, alumnus.

Geological Expert of the U. S. Land Office.

Florence Williams, graduate student.

A morphological study of some members of the genus *Pallavicinia*. Thesis for A.M.

Hayes, Wilson Young, graduate student and instructor in Metallurgy.

Details of proposed crushing plant for the Queen Esther Mine, Mohave, California. Thesis for E.M.

L. R. ABRAMS, *Secretary*

### THE KANSAS CHAPTER

The following have been elected to membership in Iota Chapter during the year:

H. A. Rice, Instructor in the Engineering School.

Repeated Stresses upon Reinforced Concrete Beams: *Kans. Univ. Engineering Bull.*, vol. 1.

N. P. Sherwood, Instructor in Bacteriology.

The Bacteriological Flora of Soda Water: *Jour. Indust. Chem.*, vol. III, No. 7.

Myrtle Greenfield, Assistant in Water Analysis.

The Histology of the Russian Thistle: *Kans. Univ. Science Bull.*

B. J. Clawson, Instructor in Botany.

The Anatomy of *Ganusia gracilis*; *Kans. Univ. Science Bull.*

Dwight Isely, graduate student.

The Taxonomy and Biology of Kansas Eumenidae: Thesis for A.M.

O. T. Wilson, graduate student.

The Histology of Alfalfa. Thesis for A.M.

Irene McCulloch, undergraduate (will also take Master's Degree).

A Parasitic Flagellate of a Hemipteron. Thesis for A.M.

Inez Smith, undergraduate member.

The Ciliates of Kansas (to be published in *Kansas Univ. Sci. Bul.*)

Edison Belt, undergraduate member.

Calibration of Instrument Transformers: Senior thesis.

Trueman Godfrey, undergraduate member.

Electrical Conductivity as Applied to Water Analysis. Senior thesis.

Chas. F. Helm, undergraduate member.

An Investigation of an Irrigation project. Senior thesis.

Amos D. Johnson, undergraduate member.

An Examination of the Ventilating System of the Kansas State Mine. Senior thesis.

Earl S. Rush, undergraduate member.

Efficiency of Universal Joints. Senior thesis.

- E. A. Van Houten, undergraduate member.  
A Design of a Hydro-Electric Plant. Senior thesis.
- R. J. Bodman, and Clarke I. Dodds, undergraduate members.  
The Effect of the Addition of Lime to Concrete. Joint senior thesis.
- S. S. Schooley, and W. D. Thompson, undergraduate members.  
Efficiency Test of an Electric Light Plant.
- W. J. BAUMGARTNER, *Corresponding Secretary*

## THE PURDUE CHAPTER

During the year the Chapter has held the following open meetings: December 7th, 1912; Time and Its Measurement, by Prof. C. R. Moore, of the School of Electrical Engineering, Purdue University. January 17th, 1913; Recent Study of the Stars, by Dr. George C. Comstock, Director Washburn Observatory, University of Wisconsin. March 15th, 1913; Design of Automobile, Railroad, Marine and Lighthouse Lenses and Mirrors, by Prof. H. S. Hower of the Carnegie Institute of Technology. At a business meeting held March 6th, 1913, Dean C. H. Benjamin was elected Councilor of the Purdue Chapter.

- The following members were elected to Sigma Xi, June, 1912:
- H. C. Pepper, Professor Chemical Engineering.  
Numerous important chemical discoveries.
- C. R. Orton, Assistant Botanist, Agricultural Experiment Station.  
Disease Resistance in Varieties of Potatoes. Ind. Acad. Sci.  
Also other publications.
- R. C. Fielding, undergraduate member.  
Investigation of Effect of Superheat on Locomotive Performance. Senior thesis. B.S. in M.E., 1912.
- H. A. Huehotter, undergraduate member.  
A Study of Design of Shear Frames. Senior thesis, B.S. in M.E., 1912.
- P. C. Thompson, undergraduate member.  
The Design of Low Pressure Turbine for LaFayette Box Board Works. Senior thesis. B.S. in M.E., 1912.
- G. C. Appel, undergraduate member.  
A Predetermination of Alternator Regulation from the Flux Distribution Curves. Senior thesis. B.S. in E.E., 1912.
- L. H. McKinzie, undergraduate member.  
Research work with Geo. Cutter Co. of South Bend, Ind.  
Comparative Tests of Streethoods. Senior thesis. B.S. in E.E., 1912.

- D. H. Rose, undergraduate member.  
A Study of a New Alternator Regulator. Senior thesis. B.S. in E.E., 1912.
- O. L. Canfield, undergraduate member.  
Distribution of Wind Forces on Mill Buildings. Senior thesis. B.S. in C.E., 1912.
- W. G. Kemmerer, undergraduate member.  
Flow of Water Over Various Types of Dams. Senior thesis. B.S. in C.E., 1912.
- E. W. Lane, undergraduate member.  
Flow of Water Over Various Types of Dams. Senior thesis. B.S. in C.E., 1912.
- C. A. Ludwig, undergraduate member.  
Fungus Diseases of Sweet Potatoes in Indiana. Senior thesis. B.S.A., 1912.
- F. E. Robbins, undergraduate member.  
A Study of the Effect of Mechanical Pollination Upon Clover Seed Production. Senior thesis. B.S. in A., 1912.
- C. FRANCIS HARDING, *Recording Secretary*

### THE INDIANA CHAPTER

The Indiana University Chapter of Sigma Xi, organized in 1904, has now an active membership of thirty-nine and an alumni membership of seventy-two. The chapter holds regular meetings, the main feature of each meeting being an address by some member on a scientific subject, usually giving the results of original research. Following the address, there is always an informal social session, which affords the members an excellent opportunity for the discussion of scientific questions and other matters of interest to the chapter and the university in general. Occasionally an open meeting is held, addressed by some guest from another institution.

The chapter does not elect seniors to membership. Since the sending in of the list of members for the Quarter Century Record and History, the following persons have become members:

Hal P. Bybee, graduate student.

Fauna of the Permian of the Western Mississippi Valley.  
Thesis for A.M.

Darman Artelle Rhinehart, graduate student.

Nerve endings in the thyroid and parathyroid bodies. Thesis for A.M.

Clayton Ulrey, graduate student.

On the ultra-microscope. Thesis for A.M.



Dayton Ulrey, graduate student.

On the absorption of light by ionized gases. Thesis for A.M.

Cora B. Hennel, graduate student.

Certain transformations and invariants connected with general linear homogeneous difference equations and other functional equations. Thesis for Ph.D.

Hugh Everett Brown, graduate student.

Variation with light of the temperature conductivity on selenium. Thesis for A.M.

William F. Book, Professor of Educational Psychology. Faculty member.

The psychology of skill with special reference to its acquisition in typewriting. Univ. Mont. Studies in Psych. 1, pp. 1-18.

Also other publications.

Elmer E. Jones, Professor of the History of Education. Faculty member.

A study of association in children of the elementary schools.

School Rev. Monograph, No. 3, Feb. 1913. Also other publications.

Clarence Edmondson, graduate student.

The effect of thyroid and thymus feeding on growth and reproduction. Thesis for Ph.D.

CORA B. HENNEL, Secretary.

### THE ILLINOIS CHAPTER

The University of Illinois Chapter of Sigma Xi has held regular monthly meetings during the academic year. The program usually consists of general scientific lectures or papers in which members summarise their investigations, of talks on the lives of prominent scientists, or of reports of scientific conventions. Occasionally scientists from other institutions address the society, usually in open meeting. At Illinois the idea prevails that Sigma Xi should give its members an opportunity to become acquainted with the scientific work that each is doing and should stimulate scientific activity among its members.

The October meeting was devoted to the life of Henri Poincaré. Professor J. B. Shaw of the mathematical department read a paper entitled, Henry Poincaré as an Investigator. Dr. Emil Borel, Professor of the Theory of Functions, University of Paris, and Vice-Director of the Higher Normal School of France, spoke on the personality and work of his colleague, the late Professor Poincaré.

In December was held the only public meeting of the academic year, when Dr. Casey A. Wood of Chicago gave a remarkable illustrated lecture on The Eyes and Eyesight of the Lower Animals. This meeting was introduced by a short illustrated Preliminary Announcement of the Crocker Land Expedition, by W. E. Ekblaw of the geological department of the University; Mr. Ekblaw is to be a member of this expedition.

Other addresses during the academic year have been: The Origin of Coal, by E. C. Jeffrey, Professor of Plant Morphology at Harvard University, elucidating Dr. Jeffrey's theory regarding the formation of coal.

Coal Investigations at the University of Illinois, by F. A. DeWolfe, Director of the Illinois State Geological Survey, illustrated by charts and lantern slides.

Edward Strasburger, Teacher and Investigator, by C. F. Hottes, Professor of Botany, University of Illinois, a former student of the late Professor Strasburger.

Mechanical Production of Cold, by C. R. Richards, Professor of Mechanical Engineering, University of Illinois.

Observations on Work in Physics in Germany, by F. R. Watson, Assistant Professor of Physics, University of Illinois.

Some European Chemists and their Laboratories, by W. A. Noyes, Director of the Chemistry Department, University of Illinois. Professor Noyes also reviewed the work of the International Association of Chemical Societies held at Berlin, Germany, in April, 1912, at which he represented the American Chemical Society.

The following faculty members were elected to membership: W. E. Burge, Assistant Professor of Physiology.

The Rate of the Destruction of Ptyalin by the Passage of the Direct Electric Current. *Amer. Jour. Physiol.*, Feb., 1913. Paul Hanson, Associate in Sanitary Engineering and Engineer for the State Water Survey.

Control of Steam Pollution. *Ill. Acad. Sci.*, Feb., 1913. Jacob Kunz, Assistant Professor of Physics.

Photoelektrische Indicatoren für electromagnetische Wellen. *Jahrb. f. drahtlose Teleg.*, 1912.

A. B. McDaniel, Assistant Professor of Civil Engineering. *Excavating Machinery*. Text-book. McGraw-Hill Co.

H. C. P. Weber, Associate in Chemistry.

The Atomic Weight of Bromide. *Jour. Amer. Chem. Soc.*, vol. 34, p. 1294, 1912.

The annual election of members has not yet been held in the Illinois Chapter.

C. G. DERICK, Secretary.

## OPEN FORUM

### SIGMA XI CONVENTIONS

There has been much discussion of recent years concerning the desirability of holding the Sigma Xi convention at some time and place apart from the meetings of other organizations. Those who are familiar with the hurried session and inadequate consideration of business items during recent conventions feel a strong sympathy with this movement. In the amendments presented to the last convention by Minnesota provision was made for such a separate convention in which each chapter was to be represented by one delegate for whom the necessary traveling expenses were to be paid from the general funds of the Society. Since the convention I have been doing a little figuring and I am afraid that those who supported this movement failed to appreciate the tremendous area over which our chapters are distributed. I have made from an official rate book a calculation of the railroad expenses on this basis. If a convention were to be held in Chicago, the railroad fares would amount to \$900; or if in Boston the total railroad fare would be \$1350. While these figures might be reduced slightly by special rates it must be noted that they take no account of sleeping cars, meals, and other expenses en route. I am frank to say that I do not believe the Society could possibly finance the proposition. I have wondered accordingly whether a compromise plan might not be possible. Suppose, for instance, that the general convention be located at some point decided upon for scientific meetings, but that the date of the convention be put the day before or the day after the scientific meetings. If also provision is made to pay the extra expenses of delegates and a purely business convention is held, which a delegate from each chapter is required to attend, then the total cost will be brought within the limit of possibilities, and at the same time the Society will gain for its business discussions freedom from interruption and from pressure incident to a series of meetings in rapid succession which have seriously interfered with the efficient work of recent conventions.

All in all there seems to be no organization or series of organizations which would call together a wider representation of scientific men, and consequently furnish better opportunities for securing delegates than the meetings of Convocation Week held under the auspices of the American Association for the Advancement of Science.

XYZ.

THE ANNUAL CONVENTION OF SIGMA XI  
NEXT WINTER

For many years the Society has held its annual convention in connection with the meetings of Convocation Week. Appendix V of the Constitution orders that the regular time of the meeting of the conventions of the Society be on Tuesday evening of the week of the meeting of the American Association for the Advancement of Science, and the place be the meeting place of the Association, unless otherwise provided for by the officers of the Society.

During the coming winter the American Association will meet in Atlanta, Georgia. There are evident disadvantages for our organization is considering the plan of holding a convention at that distance; on the other hand Sigma Xi has not yet exercised the influence in the south which it might exert for the development of scientific work with especial reference to research. The occasion would seem to be one peculiarly adapted for bringing the organization and its ideals before the attention of this section of the country.

There is an important question as to the form which the meeting should take. I am sure that the President Cattell would welcome communications on this matter which might be considered in formulating the precise plan for the meeting.

HENRY B. WARD.

## MEDICAL SCHOOLS AND SIGMA XI

Two years ago Dean H. T. Eddy in his President's Address emphasized a feature in the outlook for Sigma Xi which deserves careful consideration. Why cannot we have it discussed fully and widely? He said:

"Quite a number of inquiries have also been received, some of which raise questions not yet passed upon by the Society. One of the most interesting of these is as to our attitude toward university schools of medicine reorganized on the basis of modern science and actual research. No branch of science is at present undergoing more rapid development than medicine, and no branch of applied science is annexing larger departments of pure science than medicine. Must we not adjust ourselves to measures that will arrange for fuller recognition of it?"

M.

## NEWS ITEMS

The managing editor, Professor S. W. Williston, has gone to the International Zoological Congress as the representative of the American Zoological Society. While the first two numbers of the Quarterly are prepared according to plans decided upon before his departure he should not be held responsible for errors and omissions in them.

The Pennsylvania Chapter sends to members just in advance of a meeting for the election of new members a circular letter stating that "at the business meeting the Committee on Nominations will report that it has approved the following persons for membership in the Chapter". The letter then gives a list of names each accompanied by a careful record of positions, degrees, contributions to research, lines of investigation pursued, and other important data. If all chapters exercised such care there would be less outside criticism that Sigma Xi elections are sometimes hasty and do not justify the ideals of the organization.

The long expected Quarter Century Record and History is finally being printed. The correction of proof, preparation of indices, and other associated duties have involved much more time than anticipated. Furthermore the material is considerably more extensive than was calculated at the start and subscribers will get a volume noticeably larger than was promised them. As announced in several circulars sent each member of the Society the edition is limited by order of the Washington convention to 200 copies above the subscriptions received. All members who have delayed sending in their subscriptions should take immediate action. Copies wanted by libraries must also be secured at once to avoid disappointment.

Certain statistical data are printed in the Quarterly for the use of members. Opposite page 28 is given a complete list of national officers of the Society of Sigma Xi with their addresses. The names of all chapter officers are given in the table on page 27, according to the data furnished in the latest chapter reports. The statistical records of chapters for the past year are incorporated in a table on page 26. A slight change in form has been made in this table. In one sense it is the continuation of the series of statistical tables printed in the convention proceedings of recent years, yet it follows the precise arrangement used in the corresponding tables of the Quarter Century Record and History and utilizes as a basis the membership totals given in that work. A careful examination of the data printed in earlier pamphlets showed certain discrepancies between different reports that made it impossible to use these data in calculating the growth and present condition of the various chapters. Accordingly the membership lists submitted by the chapters were collated and the results furnished exact data on the growth in membership of individual chapters. The first column of this table given here represents the precise number of names listed in



the membership roll of each chapter, and the grand totals show the complete present membership. That two chapters have an active membership of more than two hundred each, and ten enroll each more than one hundred active members is hardly less surprising than the aggregate membership of 8200 now listed on the records of Sigma Xi. Such figures are overwhelming evidence of the growth of the Society and exceed by far the estimates even of those most familiar with the organization.

It is evidently of some importance for the society that its records should be complete. On the other hand it is not strange that in the lapse of time and frequent change of officers as well as in the absence of permanent printed records some confusion has arisen. We are at a point where the errors may be corrected and the omissions, if any, made good. The first column in the table of membership statistics on the opposite page represents the record of membership in each chapter as obtained from an actual count of the names in the Quarter Century Record and History. It is easily possible that in the various stages of the process of making up the chapter roll and putting it into print some names may have been duplicated and others have been dropped out. In one chapter the careful checking of the list furnished in comparison with the minutes in the secretary's book and the financial record in the treasurer's book showed that forty names had been omitted from the list in print. Perhaps names have been omitted similarly in other chapters and evidently the first step towards the perfection of the Record is the verification of the total membership on December 31, 1911, as it is listed in the volume. The next series of columns represents the additions to the Society during the calendar year 1912, and this is followed by a set of columns representing the total classified membership at the close of 1912. If these figures are correct then the column of total membership for 1912 is an accurate representation of the condition of the Society at the last annual convention. The active membership as represented in the last column is taken from the secretaries' reports. It will evidently represent a more uncertain and less important figure than the total membership since the coming and going of members will cause the figures to fluctuate slightly during the year. If the chapter secretaries will undertake to check up all these figures for their individual chapters the record may be verified or corrected and thus establish as a basis for future records. Attention should be paid to the type of membership which is precisely defined by the Constitution. The record in our Quarter Century volume represents the terms under which the individual was elected, although it is evident that any individual might have been selected originally as an undergraduate member and have become successively one in any or all of the other groups of members recognized by the Constitution.



## MEMBERSHIP OF SIGMA XI

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MEMBERSHIP OF SIGMA XI  
STATISTICS FOR 1912

Chapters		Elected in 1912				Total Membership Classified				Totals for 1912			
Number	Name	Totals for 1911*	Undergraduates	Grad'te Students	Faculty Members	Alumni Members	Charter Members	Undergraduates	Grad'te Students	Faculty Members	Alumni Members	Grand Totals	Active Member-ship
1	Cornell .....	1070	21	34	5	....	13	537	397	134	49	1130	144
2	Rensselaer .....	208	22	40	0	....	7	207	40	16	.....	270	29
3	Union .....	164	8	1	1	....	15	14	99	39	7	174	12
4	Kansas .....	286	24	4	3	....	5	196	35	58	23	317	56
5	Yale .....	597	28	12	6	....	20	351	179	91	2	643	125
6	Minnesota .....	334	1	8	1	....	18	232	44	49	1	344	101
7	Nebraska .....	287	13	9	1	....	13	93	156	40	8	310	70
8	Ohio State .....	324	21	4	3	....	28	175	48	66	35	352	86
9	Pennsylvania .....	440	18	2	0	....	12	272	60	90	26	460	128
10	Brown .....	168	10	1	1	....	28	83	45	10	14	180	35
11	Iowa .....	182	8	5	2	....	12	92	52	41	.....	197	61
12	Stanford .....	180	5	16	2	....	14	12	90	47	40	203	53
13	California .....	393	25	12	3	....	16	143	167	98	9	433	103
14	Columbia .....	376	17	14	6	....	22	149	188	21	33	413	101
15	Chicago .....	425	0	38	2	....	62	4	363	31	5	465	201
16	Michigan .....	443	41	7	3	....	36	310	66	80	2	494	125
17	Illinois .....	467	24	18	4	....	39	255	85	136	4	513	212
18	Case .....	161	9	0	10	....	17	86	.....	33	44	180	21
19	Indiana .....	101	0	12	1	....	14	16	53	26	5	114	35
20	Missouri .....	161	18	6	3	....	23	80	33	51	1	188	63
21	Colorado .....	90	1	0	4	....	14	19	24	38	.....	95	42
22	Northwestern .....	90	1	3	1	....	27	28	22	15	3	95	41
23	Syracuse .....	85	0	8	3	....	16	.....	43	32	5	96	50
24	Wisconsin .....	177	0	10	20	....	42	.....	25	116	24	207	145
25	Washington State .....	70	6	2	4	....	27	27	9	18	1	82	36
26	Worcester .....	83	15	1	1	....	18	67	5	9	1	100	26
27	Purdue .....	72	11	0	2	....	21	32	.....	32	.....	85	48
28	Washington Univer...	46	5	7	2	....	12	20	7	14	7	60	27
			352	274	94	....	591	3500	2335	1425	349		
Totals for 1912			720					8200				8200	2176

\*Taken from Quarter Century Record and History.

All other figures taken from reports of Chapter secretaries for 1912.

The two defunct chapters enrolled 18 members not included in the totals as given in the table above.

CHAPTER OFFICERS FOR 1912-13  
LIST FURNISHED BY THE CORRESPONDING SECRETARIES OF THE CHAPTERS.

CHAPTER	PRESIDENT	VICE-PRESIDENT	REC. SECRETARY	COR. SECRETARY	TREASURER
Cornell .....	R. C. Carpenter..	A. W. Browne...	F. K. Richtmyer..	James McMahon..	W. A. Riley
Rensselaer .....	E. R. Cary.....	R. H. Carrington..	C. H. Andros....	E. F. Chillman...	E. F. Chillman
Union .....	Olin H. Landreth..	Howard Opdyke...	Morland King....	J. H. Cunningham.	Chas. F. F. Garis
Kansas .....	P. F. Walker.....	H. P. Cady.....	U. G. Nutchell...	W. J. Baumgartner.	W. H. Twenhofel
Yale .....	Roswell P. Angier..	Wm. A. Drushel...	Harold S. Palmer..	Joseph W. Roe....	H. M. Dadourian
Minnesota .....	F. E. Clements...	John B. Johnston..	Wm. H. Bussey...	David F. Swenson..	A. L. Underhill
Nebraska .....	H. H. Waite.....	Geo. Borrowman..	V. L. Hollister...	A. L. Candy.....	L. B. Tuckerman, jr
Ohio .....	D. S. White.....	J. S. Hine.....	J. R. Withrow....	J. R. Withrow....	F. C. Blake
Pennsylvania .....	Allen J. Smith...	J. M. Macfarlane..	Maurice J. Babb..	J. W. Harshberger.	J. P. Moore
Brown .....	F. P. Gorham.....	Ansel Brooks....	R.G.D. Richardson.	T. M. Phetteplace.	Herbert E. Waller
Iowa .....	Carl E. Seashore..	Geo. W. Stewart..	Fay C. Brown....	G. L. Houser.....	Robert B. Wylie
Stanford .....	Robert E. Swain...	W. K. Fisher....	Leroy Abrams....	LeRoy Abrams....	LeRoy Abrams
California .....	A. O. Leuschner...	S. S. Maxwell....	E. B. Babcock....	E. O'Neill.....	I. N. LeConte
Columbia .....	George F. Sever..	Arthur L. Walker..	H. E. Hawkes....	Chas. P. Berkey...	H. E. Hawkes
Chicago .....	John M. Coulter..	A. P. Matthews...	H. I. Schlesinger.	J. Stieglitz.....	H. I. Schlesinger
Michigan .....	F. G. Novy.....	Chas. J. Tilden...	Edward D. Rich..	Edward D. Rich..	Ermine C. Case
Illinois .....	G. A. Miller.....	H. W. Mumford..	Edward Bartow...	C. G. Derick.....	T. E. Savage
Case .....	T. M. Focke.....	F. R. Van Horn...	W. J. Sweetser...	W. J. Sweetser...	C. D. Hodgman
Indiana .....	Aug. G. Pohlman..	M. E. Haggerty...	Mrs. F.N. Andrews.	Corra B. Hennel..	John B. Dutcher
Missouri .....	Herman Schlundt.	W. C. Curtis.....	A. Lincoln Hyde..	E. J. Durand.....	Chas. W. Greene
Colorado .....	J. H. Evans.....	Olin H. Basquin...	Harry A. Curtis...	Harry A. Curtis...	Ira M. DeLong
Northwestern .....	John H. Long....	E. H. Archibald..	Robt. E. Wilson...	Geo. R. Mansfield.	Robt. R. Tatnall
Syracuse .....	Chas. W. Hargitt..	L. R. Ingersoll...	Chas. G. Rogers...	Chas. G. Rogers...	F. F. Decker.....
Wisconsin .....	Horace G. Byers..	John Weinzirl...	Walter J. Meek...	Chas. Elmer Allen	Otto L. Kowalke.
Washington State	Chas. F. Burgess..	Joseph O. Phelon..	Robert E. Rose...	H. C. Stevens....	Geo. S. Wilson
Worcester .....	W. L. Jennings...	Otto F. Hunziker..	D. F. Calhane....	Howard C. Ives...	Francis W. Roys
Purdue .....	Fercy N. Evans...	William Trelease..	C. E. Harding...	Stanley Coulter...	R. G. Dukas
Washington Univ.	Francis E. Nipher.		W. E. McCourt...	Ernest L. Ohle...	J. F. Abbott

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### CHAPTER REPRESENTATIVES

#### TERM ENDING JANUARY 2, 1913

Michigan—WM. H. HOBBS	Washington University—F. E. NIPHER
Rensselaer—C. W. CROCKETT	Wisconsin—V. LENHER
Stanford—H. J. RYAN	

#### TERM ENDING JANUARY, 1914

Case—C. S. HOWE	Nebraska—E. W. DAVIS
Chicago—JULIUS STIEGLITZ	Northwestern—WM. A. LOCY
Iowa—THOS. H. MCBRIDE	Ohio—EDWARD ORTON, JR.
Kansas—E. H. S. BAILEY	Worcester—A. W. ELWELL
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#### TERM ENDING JANUARY, 1915

Columbia—C. C. CURTIS	Syracuse—W. H. METZLER
Cornell—H. S. WILLIAMS	Union—OLIN H. LANDRETH
Indiana—C. H. EIGENMANN	Washington State—HENRY LANDES
Missouri—O. M. STEWART	Yale—JOHN C. TRACY
Pennsylvania—E. F. SMITH	

#### TERM ENDING JANUARY, 1916

Brown—ALBERT DE FOREST PALMER	Illinois—S. A. FORBES
California—J. C. MERRIAM	Purdue—C. H. BENJAMIN
Colorado—FRANCIS RAMALEY	

Chairman of the Council.....JULIUS STIEGLITZ (Chicago)

According to the Constitution the terms of all national officers end with the annual convention which comes at the close of the period for which they were elected. Nevertheless officers all serve until their successors are elected.

### ANNOUNCEMENT

The General Convention has instructed the Secretary to keep for chapters a supply of printed blanks as enumerated below. According to instructions these are to be forwarded to chapters under the following stipulations:

Membership Certificates, stamped with the great seal of the Society. In packages of fifty prepaid, on advance of payment of \$2.50 for each package.

Index Cards, on the condition that a duplicate set be sent for the general index of the Society maintained in the secretary's office. Gratis on demand.

Report Blanks, for submitting annual reports giving chapter officers, elections, and other statistical data. Gratis on demand.

### SIGMA XI PUBLICATIONS

It has been proposed to bind up a number of sets of important early documents regarding Sigma Xi and to place a set in each of a selected series of the leading libraries of this country.

The undersigned will be glad to receive copies of such publications relating to the Society in general or to any one of its chapters which those interested may be able and willing to furnish for this purpose.

HENRY B. WARD.